Demonstrating Return on Investment for Capacity Management

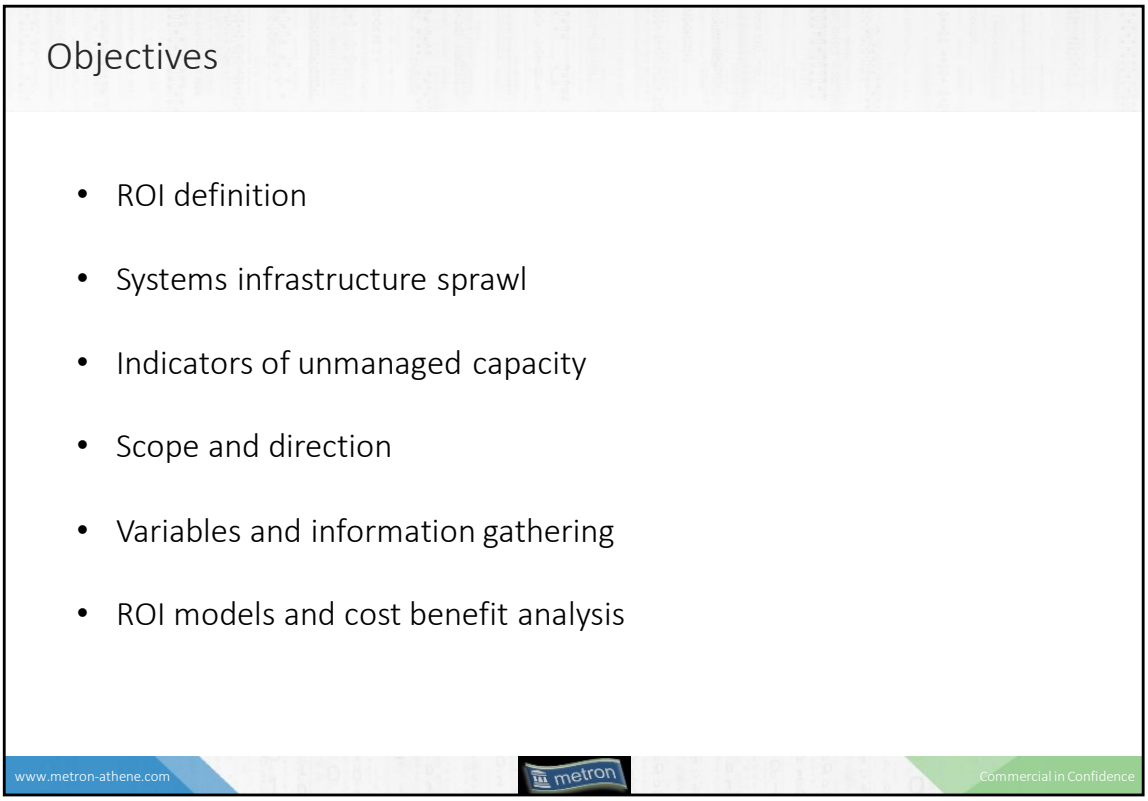
Evaluating how effective an investment in capacity management will be starts with analyzing the environment in which you wish to establish better visibility and control.

Abstract

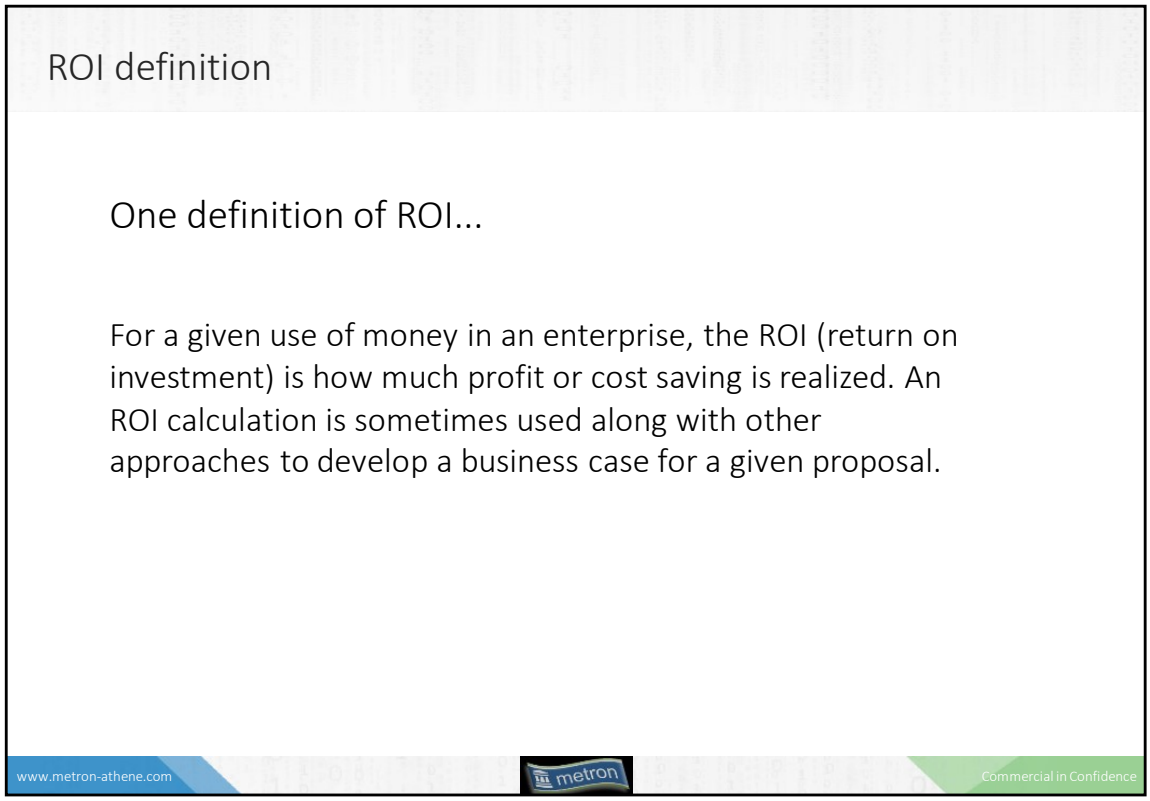
As environments grow larger and more complex, problems related to a lack of capacity management continue to expand. When a company finally realized that it has a created, a large distributed and virtualized environment for which there is little visibility, it can be difficult to implement processes and software to manage its capacity. Determining when a company will reach this point is also difficult. Many times, the determining factor will be a management focus of return on investment (ROI). Is the cost of doing capacity management in these environments less than the cost of continuing with existing practices?

Evaluating how effective an investment in capacity management will be starts with analyzing the environment in which you wish to establish better visibility and control. If no processes are in place then it may include everything. If some capacity management is already in place, then a scoping exercise may be required initially. Existing processes may also be included for improvement. A cost benefit analysis can then be started by taking inventory of unmanaged hardware and analyzing other extraneous and environmental costs. Reoccurring costs without capacity management can then be compared to the savings benefit produced by implementing capacity management.

Summary of presentation



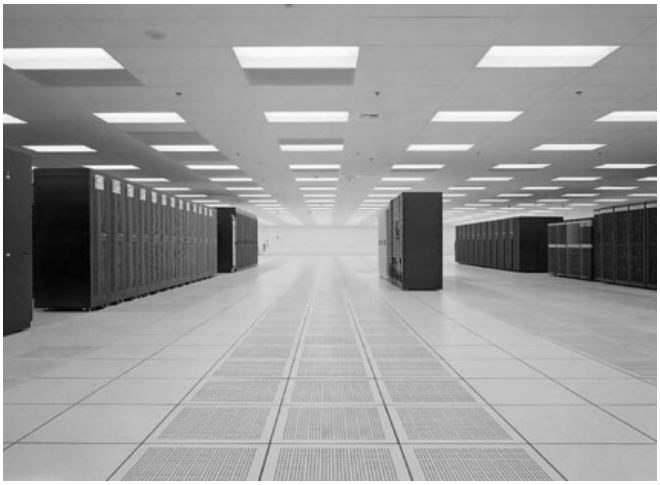
Key areas covered in the presentation



Understanding the components that determine a return on investment is key to performing an accurate assessment.

Systems infrastructure sprawl

Data Center



- How much of it is being used efficiently?
- How do you define efficient, and does it apply uniformly?
- Which systems will run out of capacity?
- What visibility is required to make it run efficiently?

Sprawl is a term commonly applied to environments that expand in an uncontrolled manner. Distributed computing is a classic example, where components are added freely due to a lower cost point relative to older generation hardware. Virtualization is many times viewed as a way to consolidate and reduce server sprawl. However, many IT shops are now discovering that it may simply enable more sprawl, with additional hidden overhead.

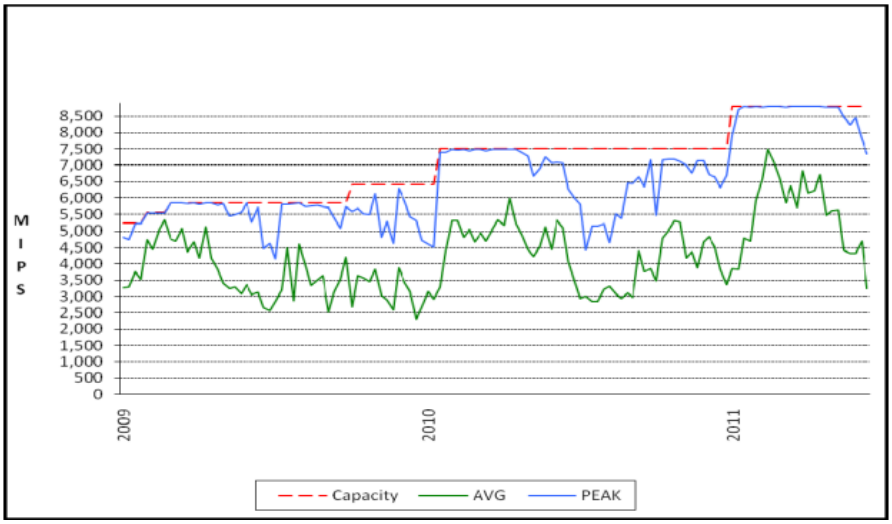
Indicators of unmanaged capacity

- Capacity related incidents
- Reactive mode of operation for capacity incidents
- Lack of visibility into system resource utilization
- Poor performance that is the norm
- No ownership of capacity concerns
- Using excessive hardware to ensure capacity

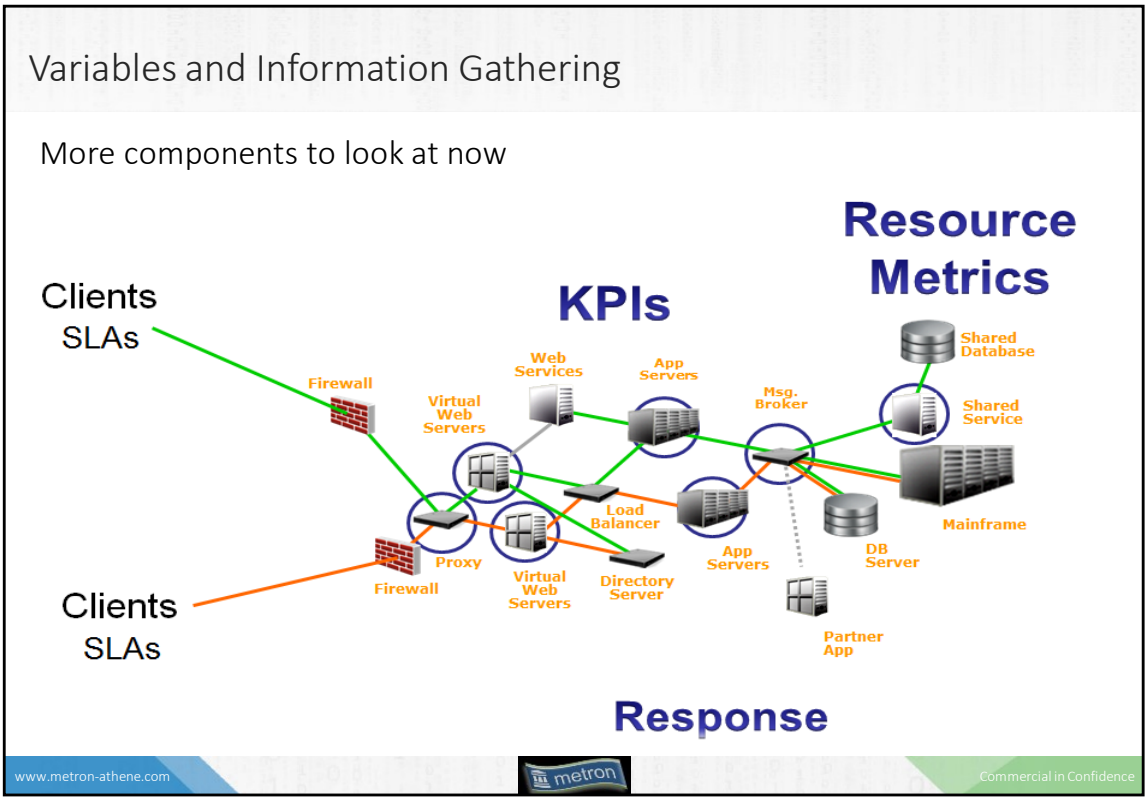
Indicators of unmanaged capacity are a good starting pointing in analyzing the potential return on investment of improving them. Each of them could be considered a factor or variable in computations to quantify their impact.

Scope and Direction

How to deliver highest value return



Determining what to include in the scope of a capacity management ROI study is important to its accuracy. Including to much detail can make the data requirements unwieldy and result in output that is difficult to understand. Not including enough detail can potentially leave out key drivers of value and make the output seem to simplistic. The picture shows a traditional mainframe capacity planning chart, where MIPs were added incrementally as needed. For a mainframe only shop, the value of doing capacity management has traditionally been more easy to quantify.



In highly distributed environments determining the value of capacity management is more complex. The previously shown mainframe chart still applies, but it is a small part of the overall picture. Additional items, other than actual hardware, can be important to the analysis. Things like power consumption, capacity related incidents, administration time, software costs, maintenance, etc..., can be important factors. Determining the right balance of what to include is key in producing an accurate value proposition.

Variables and Information Gathering

What factors are key in determining ROI?

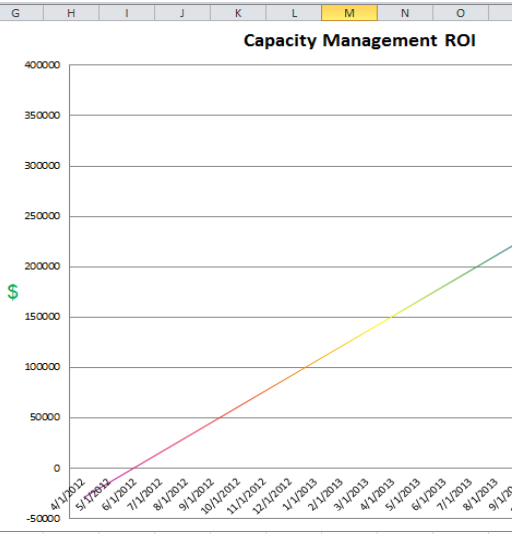
- Resource utilizations
- Growth in resource utilizations
- Count of hardware/software assets
- Cost of hardware/software assets
- Maintenance cost for hardware
- Capacity related incidents
- Average cost of incidents
- Risk of capacity related incidents
- Capacity related labor costs

The list shown is just a sampling of factors that can be used to evaluate ROI for capacity management.

ROI Models and Cost Benefit Analysis

Detailed component spreadsheet

	A	B	C	D	E	F
1	Period Size in Days	Calculate Return on Investment			ROI Model	
2	30					
3	Forecast Periods	*Adjust green cells*				
4	24	Groups >	Internet Banking	Wires	Branch Capture	Corporate Banking
5	☑ Update Dates	Quantity >	10	6	4	6
6	Labor costs without	software per period for				
7	16000	<< capacity work				
8	Purchase / Install	costs per unit				
9		for new equipment >>	18412	10133	5553	31944
10	Maintenance	costs per period for				
11		existing equipment >>	307	169	93	532
12	Software	costs				
13	15800	< Software				
14	3000	< Equipment				
15	2000	< Training				
16	6000	< Planning				
17	3160	< Maintenance				
18	8000	< Labor				
19						
20	Average utilization	Current >>	50.0%	50.0%	50.0%	50.0%
21		Athene optimized >>	80.0%	80.0%	80.0%	80.0%
22	Average incident cost	to business				
23		related to capacity >>	2822	2822	2822	2822
24	Average number of	capacity related				
25	1.00	incidents per period << without software				
26		Reduction of incidents when using software >>	80.0%	80.0%	80.0%	80.0%
27	Expected	hardware growth				
28		over all periods >>	45.0%	68.0%	45.0%	68.0%



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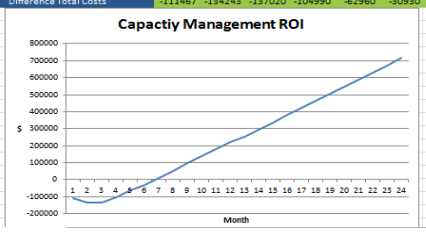
Commercial in Confidence

This example spreadsheet incorporates variables from the previous slide along with others, to model ROI for a distributed computing environment. The model has parameters colored in green that can be adjusted. The number of columns starting at 'C' are variable and represent groups of computing resources. Column 'A' is where upfront costs go. The calculate button runs a macro that does the accounting to produce data for the graph. Initial costs cause the line to start below zero, meaning a negative return. A break even point is reached when the line crosses the x-axis. Then going forward in savings continues to accumulate adding to the total return on investment.

ROI Models and Cost Benefit Analysis

Higher level spreadsheet

			1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
		Licence Cost	100000															
		Maintenance	1667	1667	1667	1667	1667	1667	1667	1667	1667	1667	1667	1667	1750	1750	1750	1750
		Training		10000														
		Implementation Services		10000		10000		10000							10000			
	Client	Preparation	8800	110	110	110	110	110	110	110	110	110	110	110	110	110	110	110
	Client	Personnel																
	Client	Server	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000
		Total Costs	111467	22777	2777	12777	2777	12777	2777	2777	2777	2777	2777	2777	12860	2860	2860	2860
		Total Cumulative Costs	111467	134243	137020	149797	152573	165350	168127	170903	173680	176457	179233	182010	194870	197730	200590	203450
	Hard	Hardware Purchase Deferral				33000	33000	33000	33000	33000	33000	33000	33000	33000	33000	33000	33000	33000
		Other Software Decommissioned																
		Total Hard Savings	0	0	0	33000	33000	33000	33000	33000	33000	33000	33000	33000	33000	33000	33000	33000
		Total Cumulative Hard Savings	0	0	0	33000	66000	99000	132000	165000	198000	231000	264000	297000	330000	363000	396000	429000
	Soft	Less Downtime				8333	8333	8333	8333	8333	8333	8333	8333	8333	8333	8333	8333	8333
		Less Slowtime/More tx processe				833	833	833	833	833	833	833	833	833	833	833	833	833
		CM staff productivity																
		Sys Admin Savings				2640	2640	2640	2640	2640	2640	2640	2640	2640	2640	2640	2640	2640
		Total Soft Savngs	0	0	0	11807	11807	11807	11807	11807	11807	11807	11807	11807	11807	11807	11807	11807
		Total Cumulative Soft Savings	0	0	0	11807	23613	35420	47227	59033	70840	82647	94453	106260	118067	129873	141680	153487
		Total Savings	0	0	0	44807	44807	44807	44807	44807	44807	44807	44807	44807	44807	44807	44807	44807
		Total Cumulative Savings	0	0	0	44807	89613	134420	179227	224033	268840	313647	358453	403260	448067	492873	537680	582487
		Difference Hard Costs	-111467	-134243	-137020	-116797	-86573	-66350	-36127	-5903	24320	54543	84767	114990	135130	165270	195410	225550
		Difference Total Costs	-111467	-134243	-137020	-104990	-62960	-30930	11100	53130	95160	137190	179220	221250	253197	295143	337090	379037



This example spreadsheet takes a different more simplified approach where costs and savings are compiled into averaged values. Certain in noted cells can be adjusted to model an environment where capacity management will be implemented. Again the graph shows a negative return initially, a break even point, and continual savings adding to the return on investment going forward.

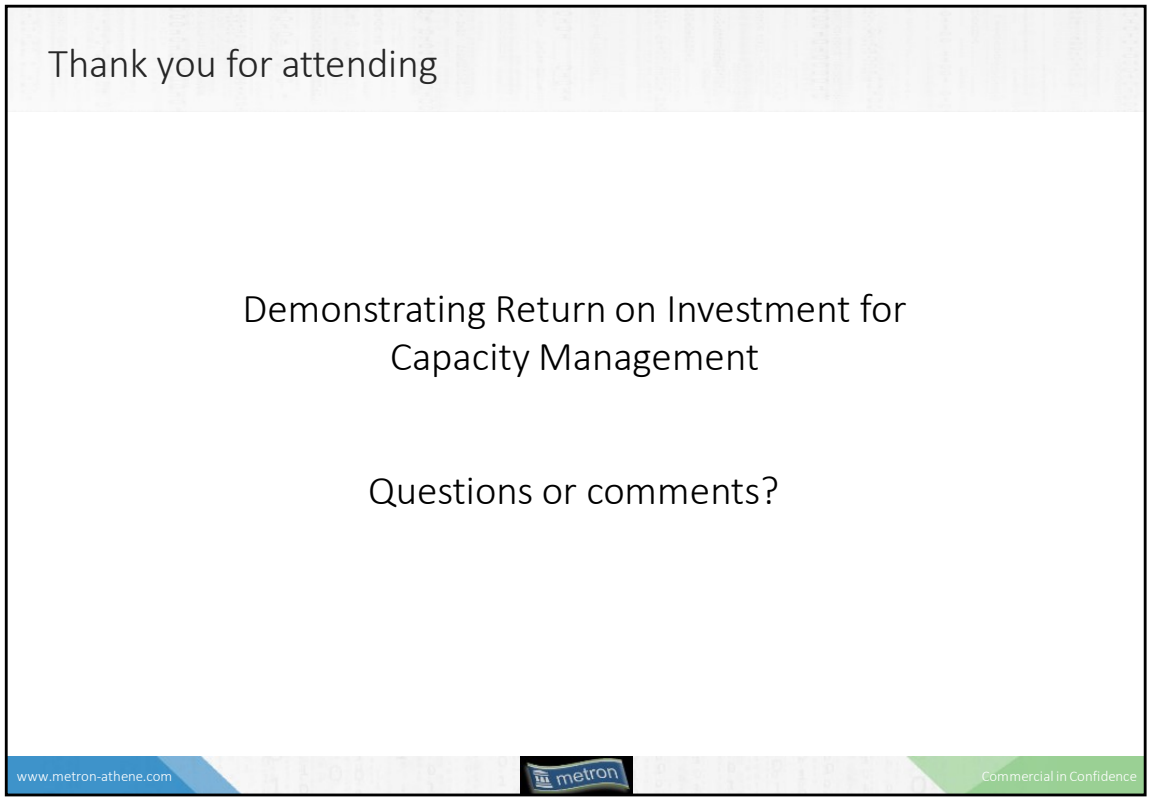
Summary and Final Thoughts

Justification for doing capacity management many times will involve showing a return on investment. Doing this can be difficult with so many variables involved.

We outlined some key variables that should be included in the analysis, and presented two spreadsheet models that utilizes those variables.

- Doing capacity management is worth the effort, and demonstrating that argument with numbers can help to show it quantitatively.

Understanding the return on investment has become important for many business initiatives, including capacity management. Showing the value of doing capacity management is not easy for the complex computing environments that exist today. However, by taking an analytic and quantitative approach it is possible to prove that it is a worthwhile endeavor.



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